Amendments to the Claims:

1. (Previously presented) A method for defining the relationship between frequency and amplitude of a pulse function modulating a data stream for transmission in a telecommunications system in accordance with a predetermined modulation scheme to compensate for distortion by a component of the transmitter, wherein the telecommunications system has desired criteria for respective associated cost parameters, and the pulse function for modulating is determined by:

defining cost functions representing the deviation of a respective one of the cost parameters from the associated desired system criterion; and

defining the amplitude of the pulse function over a range of frequencies in dependence on the cost functions and the distortion for which compensation is to be made.

2. (Original) A method as claimed in claim 1, wherein the compensation is for non linear distortion.

3. (Original) A method as claimed in claim 2, wherein defining the distortion to be compensated for comprises defining first and second distortions.

4. (Original) A method as claimed in claim 3, wherein the first and second distortions relate to different component tolerances.

5. (Previously presented) A method as claimed in claim 3, wherein the method comprises weighting the first and second distortions.

6. (Previously presented) A method as claimed in claim 1, wherein the compensation is for distortion by a linear component of the transmitter.

7. (Original) A method as claimed in claim 6, wherein the compensation is for distortion by a reconstruction filter.

8. (Previously presented) A method as claimed in claim 2, wherein the compensation is for distortion by a non linear component of the transmitter.

9. (Original) A method as claimed in claim 8, wherein the compensation is for distortion by a power amplifier.

10. (Previously presented) A method for defining the relationship between frequency and amplitude of a pulse function for acting on a data stream for transmission in a telecommunications system for compensate for distortion by first and second components of the transmitter, the method comprising:

the method of any preceding claim for defining the amplitude of the pulse function over a range of frequencies in dependence on the desired cost parameters for the first component;

defining the cost parameters for the second component on the basis of the distortion to be compensated for in the second component; and

defining the amplitude of the pulse function over a range of frequencies in dependence upon the distortion functions of the second component and the pulse function defined for the first component.

11. (Previously presented) A method as claimed in claim 10, wherein the compensation for distortion by the second component is compensation for non linear distortion.

12. (Original) A method as claimed in claim 11, wherein the compensation is for distortion by a non linear component of the transmitter.

13. (Previously presented) A method according to claim 1, wherein the desired cost parameters are selected from one or more of the group including component tolerances, power efficiency, spectral efficiency, bit error rate, AFC, and energy.

14. (Previously presented) A method as claimed in claim 1, wherein desired cost parameters are defined on the basis of TDMA telecommunications system requirements.

15. (Previously presented) A method as claimed in claim 1, wherein desired cost parameters are defined on the basis of GSM requirements.

16. (Previously presented) A method as claimed in claim 14, wherein the pulse function is defined such that a pulse of Gaussian shape may be transmitted.

17. (Previously presented) A method as claimed in claim 1, wherein desired cost parameters are defined on the basis of CDMA requirements.

18. (Original) A method as claimed in claim 17, wherein the pulse function is defined such that a pulse of the root raised cosine shape may be transmitted.

19. (Previously presented) A method according to claim 1, wherein the amplitude of the pulse function over a range of frequencies is defined in an iterative process in which the pulse function is altered and the cost parameters determined until an acceptable balance of cost parameters is achieved.

20. (Previously presented) A method according to claim 1, wherein the method comprises the step of weighting the respective cost parameters.

21. (Original) A method according to claim 20, wherein an acceptable balance between the cost parameters is achieved by optimizing the respective costs with the respective weightings.

22. (Previously presented) A method according to claim 21, wherein the optimization is performed using an optimizer computer program.

23. (Previously presented) A pulse function generator arranged to convert a data stream in accordance with a pulse function shaped by defining the relationship between frequency and amplitude of a pulse function which modulates the data stream for transmission in a telecommunications system for compensating for distortion by a component of a transmitter, wherein the telecommunications system has desired criteria for respective associated cost parameters, the pulse function generator comprising:

means for defining cost functions representing the deviation of a respective one of the cost parameters from the associated desired system criterion; and

means for defining the amplitude of the pulse function over a range of frequencies in dependence on the cost functions and the distortion for which compensation is to be made.

24. (Previously presented) A modulator for providing a signal for transmission in a telecommunication system comprising:

the pulse function generator of claim 23 for shaping a data stream.

25. (Previously presented) A modulator according to claim 24, wherein the pulse function generator comprises a look-up table.

26. (Previously presented) A transceiver for a communication device comprising a modulator in accordance with claim 24 and a demodulator.

27. (Original) A communication device operable in communication system comprising a transceiver according to claim 26.

28. (Previously presented) A dual mode communication device operable in a first mode in a TDMA telecommunications system in which a channel is a combination frequency and a timeslot and a second mode in a CDMA telecommunications system, comprising a modulator for modulating a data stream with a carrier signal in accordance with a predetermined modulation scheme in both the first and the second modes of operation and a

pulse function generator for shaping a data stream in accordance with respective pulse functions responsive to the mode of operation of the communication device and distortion by a component of the transmitter.

29. (Previously presented) A dual mode communication device operable in a first mode when a first set of cost parameters are desired and in a second mode when a second set of cost parameters are desired, the communication device comprising:

a first pulse function generator for converting a data stream in accordance with a pulse function shaped in dependence on the first set of desired cost parameters;

a second pulse function generator for converting a data stream in accordance with a pulse function shaped in dependence on the second set of desired cost parameters; and

means for selecting the pulse function generator in accordance with the mode of operation of the communication device;

wherein at least one of the pulse functions is shaped in accordance with the relationship defined by the method of claim 1.

30. (Original) A communication device as claimed in claim 29, which is operable at a first data rate in the first mode and a second data rate in the second mode.

31. (Original) A communication device as claimed in claim 29, wherein the first data rate supports voice applications and the second data rate supports data applications.

32. (Currently amended) A dual mode communication device operable in a first mode when a first set of cost parameters are desired and in a second mode when a second set of cost parameters are desired, the ~~radiotelephone~~dual mode communication device comprising:

a modulator for modulating a data stream with a carrier signal in accordance with a predetermined modulation scheme in both the first and second modes of operation;

a first pulse function generator for shaping a data stream in accordance with a pulse function shaped in dependence on the first set of desired cost parameters and distortion by a component of the transmitter;

a second pulse function generator for shaping a data stream in accordance with a pulse function shaped in dependence on the second set of desired cost parameters and distortion by a component of the transmitter; and

means for selecting one of the pulse function generators in accordance with the mode of operation of the communication device.

33. (Previously presented) A method for selecting a modulation scheme for a communication system using a predetermined transmitter, the method comprising:

defining a pulse function for a first modulation scheme in accordance with the method as claimed in claim 1;

defining a pulse function for a second modulation scheme for the same desired cost parameters;

determining the resultant cost parameters for each scheme; and

selecting the modulation scheme which gives resultant cost parameters given desired cost parameters.

34-39. (canceled)